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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/992,814

11/06/2001

Sean B. Simmons

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EXAMINER

PATHAK, SUDHANSHU C

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/992,814

Applicant(s)

SIMMONS, SEAN B.

Examiner

Sudhanshu C. Pathak

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on November 6th, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,8,9,11-18 and 26-31 is/are rejected.
- 7) ☒ Claim(s) 5-7,10 and 19-25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on November 6th, 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-to-31 are pending in the application.

Drawings

2. Figures 1 & 3 should be designated by a legend such as "Prior Art" because only that which is known is illustrated.

Correction is required.

Claim Objections

3. Claim 28 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims refer to a communication channel detector for determining the availability of a

desired type of a communication channel however, the specification does not describe as how comparing the phase differences with a predetermined phase difference profile determines the availability of a communication channel. Furthermore, the specification does not disclose if there is a predetermined phase profile that determines availability. Furthermore, the phase difference profile is determined by the received data, and if data is being transmitted on the channel even if the predetermined profile is obtained how can that channel be available. The disclosure essentially discloses a method for detecting (demodulating) a GMSK modulated data.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 8-9, 11-17 & 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (AAPA) in view of Huttunen (6,771,718) in further view of Ho et al. (5,438,254) in further view of Beidas et al. (6,263,031).

Regarding to Claims 1-4, 8-9, 11-17 & 28, the Applicant Admitted Prior Art (AAPA) discloses a communication system having at least one communications channel, each channel including data streams comprising a

Art Unit: 2634

plurality of data symbols (Specification, Page 1, Background of Invention, lines 1-7). The AAPA also discloses a method for determining the availability of a desired type of communication channel in the communication system (Specification, Page 2, lines 1-11). The AAPA also discloses the communication system comprising data streams (channels) using the Gaussian Minimum Shift Keying (GMSK) modulation scheme (Specification, Page 8, lines 12-15). The AAPA also discloses that the phase difference between data symbols in a GMSK symbol stream is not constant rate the phase difference between symbols is dependent upon the phase of the preceding and following symbols (Specification, Page 10, lines 13-16). The AAPA also discloses oversampling each GMSK symbol, to obtain a plurality of phase measurements for each symbol, to determine the phase difference and detection of the data (Specification, Page 10, lines 16-20). However, the AAPA does not disclose for each pair of consecutive data symbols of the plurality of consecutive data symbols, determining the plurality of phase differences between the phase measurements separated in time by a symbol period, to provide a plurality of sets of phase differences between phase measurements for consecutive symbols, and determining whether or not at least one of the plurality of sets of phase differences exhibits a predetermined phase difference profile. Furthermore, the AAPA does not disclose a phase identifier for providing phase measurements, a phase comparator coupled to the phase identifier for determining the difference between phase measurements and a phase correlator coupled to phase comparator to

determine whether the computed phase differences exhibit a predetermined profile.

Huttunen discloses a method for estimating an error in the received signal in a mobile communications system, in which the received signal is successively sampled at specific points corresponding to the symbol sequence and the error estimates corresponding to the each sampled point are determined on the basis of the sample sets wherein each symbol is oversampled (Column 1, lines 5-14 & Column 2, lines 60-68 & Column 3, lines 1-5). Huttunen further discloses detecting the modulated symbols by calculating the phase differences between corresponding sample points in successive symbol sequences by subtracting from the phase of the sampling point the phase of the corresponding sampling point in the previous symbol (Column 3, lines 15-21) and comparing the determined phase difference to the one of the set of possible (reference) phase differences (Column 3, lines 29-34). Huttunen also discloses the communication system comprising a synchronization burst for synchronization of the transmitter and the receiver (Column 2, lines 52-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Huttunen teaches determining the plurality of phase differences between the phase measurements separated in time by a symbol period, to provide a plurality of sets of phase differences between phase measurements for consecutive symbols, and determining whether or not at least one of the plurality of sets of phase differences exhibits a predetermined phase difference profile and this can be

Art Unit: 2634

implemented in the demodulation of the GMSK symbols wherein the phase difference between data symbols in a GMSK symbol stream is not constant rate the phase difference between symbols is dependent upon the phase of the preceding and following symbols, so as to determine the synchronization sequence for each channel for accurate communication between the devices of the system. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that both a mobile station and the base station in a wireless communication system comprise a transceiver (for two way communication), and that the digital processing is performed in the digital signal processor (DSP) which further comprise various types memories for storing processing instructions. However, the AAPA in view of Huttunen does not disclose a phase identifier for providing phase measurements, a phase comparator coupled to the phase identifier for determining the difference between phase measurements and a phase correlator coupled to phase comparator to determine whether the computed phase differences exhibit a predetermined profile.

Ho discloses a phase difference measuring device comprising a phase detector for measuring the phase of an incoming signal (Fig. 2, element 10 & Abstract, lines 1-5) coupled to a phase comparator for computing the phase difference between two incoming signals (Fig. 2, element 20 & Abstract, lines 5-8 & Column 1, lines 58-68 & Column 2, lines 1-7) further coupled to a digital signal processor for further digital processing (Fig. 2, element 30 & Column 2, lines 42-51 & Column 3, lines 1-10). Therefore, it would have been obvious

to one of ordinary skill in the art at the time of the invention that Ho teaches a phase detector, for measuring (detecting) the phase of incoming signals coupled to a phase comparator for computing the phase difference between the two input signals and this can be implemented as the apparatuses for computing the method as described in the AAPA in view of Huttunen.

However, the AAPA in view of Huttunen in further view of Ho does not disclose a correlator coupled to the comparator to determine whether the computed phase differences exhibit a predetermined profile.

Beidas discloses a burst classifier for a digital communication system (Column 1, lines 15-60) comprising a correlator that generates a correlation data of the received burst with a reference burst (Abstract, lines 1-11 & Fig. 5, element 50 & Fig. 9, element 92 & Column 2, lines 10-23). Beidas also discloses the phase correlator is further configured to calculate a metric for each of the n histograms using the sliding window function and to correlate each of the n histograms by comparing its corresponding metric with a threshold (Abstract, lines 1-11 & Column 7, lines 44-67 & Column 8, lines 1-51 & Column 17, lines 12-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Beidas teaches a correlator coupled to determine whether the computed phase differences exhibit a predetermined profile and this can be implemented in the DSP coupled to the comparator as describe in the AAPA in view of Huttunen in further view of Ho so as to identify the received signal, thus satisfying the limitations of the claims. Furthermore, there is no criticality in storing the

Art Unit: 2634

predetermined as a histogram this is a matter of design choice. Furthermore, there is no criticality in selecting the oversampling the sampling of the phase of each symbol to be between 8 and 16 sampling points this is a matter of design choice depending on the accuracy desired.

8. Claims 18, 26-27 & 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Applicant Admitted Prior Art (AAPA) in view of Huttunen (6,771,718).

Regarding to Claims 18, 26-27 & 29-31, the Applicant Admitted Prior Art (AAPA) discloses a communication system having at least one communications channel, each channel including data streams comprising a plurality of data symbols (Specification, Page 1, Background of Invention, lines 1-7). The AAPA also discloses a method for determining the availability of a desired type of communication channel in the communication system (Specification, Page 2, lines 1-11). The AAPA also discloses the communication system comprising data streams (channels) using the Gaussian Minimum Shift Keying (GMSK) modulation scheme (Specification, Page 8, lines 12-15). The AAPA also discloses that the phase difference between data symbols in a GMSK symbol stream is not constant rate the phase difference between symbols is dependent upon the phase of the preceding and following symbols (Specification, Page 10, lines 13-16). The AAPA also discloses oversampling each GMSK symbol, to obtain a plurality of phase measurements for each symbol, to determine the phase difference and detection of the data (Specification, Page 10, lines 16-20). However, the

AAPA does not disclose for each pair of consecutive data symbols of the plurality of consecutive data symbols, determining the plurality of phase differences between the phase measurements separated in time by a symbol period, to provide a plurality of sets of phase differences between phase measurements for consecutive symbols, and determining whether or not at least one of the plurality of sets of phase differences exhibits a predetermined phase difference profile.

Huttunen discloses a method for estimating an error in the received signal in a mobile communications system, in which the received signal is successively sampled at specific points corresponding to the symbol sequence and the error estimates corresponding to the each sampled point are determined on the basis of the sample sets wherein each symbol is oversampled (Column 1, lines 5-14 & Column 2, lines 60-68 & Column 3, lines 1-5). Huttunen further discloses detecting the modulated symbols by calculating the phase differences between corresponding sample points in successive symbol sequences by subtracting from the phase of the sampling point the phase of the corresponding sampling point in the previous symbol (Column 3, lines 15-21) and comparing the determined phase difference to the one of the set of possible (reference) phase differences (Column 3, lines 29-34). Huttunen also discloses the communication system comprising a synchronization burst for synchronization of the transmitter and the receiver (Column 2, lines 52-55). Therefore, it would have been obvious to of ordinary skill in the art at the time of the invention that Huttunen teaches determining

Art Unit: 2634

the plurality of phase differences between the phase measurements separated in time by a symbol period, to provide a plurality of sets of phase differences between phase measurements for consecutive symbols, and determining whether or not at least one of the plurality of sets of phase differences exhibits a predetermined phase difference profile and this can be implemented in the demodulation of the GMSK symbols wherein the phase difference between data symbols in a GMSK symbol stream is not constant rate the phase difference between symbols is dependent upon the phase of the preceding and following symbols, so as to determine the synchronization sequence for each channel for accurate communication between the devices of the system. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that both a mobile station and the base station in a wireless communication system comprise a transceiver (for two way communication), and that the digital processing is performed in the digital signal processor (DSP) which further comprise various types memories for storing processing instructions.

Allowable Subject Matter

9. Claims 5-7, 10 & 19-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, it is recommended to the applicant to amend all the claims so as to be patentable over the cited prior art of record. A detailed list of pertinent references is included with this Office Action (See Attached "Notice of References Cited" (PTO-892)).


11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (571)-272-3038. The examiner can normally be reached on M-F: 9am-6pm.

- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)-272-3056
- The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2634

- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sudhanshu C. Pathak



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